Space Weather Forecast

Issued on Saturday, 04 June 2022 at 01:26 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of G1-G2/Minor to Moderate Storm intervals late Day 2 or Day 3 (5th-6th) from possible CME arrival(s).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Very Low, with no significant flares during the period. There are five sunspot regions on the disc, however all are relatively simple. The only developmental region is a small sunspot in the far south which has seen growth of further sunspots around what was a simple unipolar spot yesterday. However flaring has not yet been observed. No Earth-directed CMEs (coronal mass ejections) have been observed in the last 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind has been at background levels through the period, declining to near 300km/s. The interplanetary magnetic field strength has been weak, with the north-south component varying weakly, but generally in the negative (southward) direction. Geomagnetic activity was Quiet (Kp 0-2).

Energetic Particles / Solar Radiation: The count rate of solar energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Low to Very Low, with a chance Common-class flares and only a very slight chance of Moderate-class flares.

Solar Wind / Geomagnetic Activity: There are two potentially Earth-directed CMEs, although both are low confidence. Both are due to eruptions of 'filaments', or lines of plasma held above the Sun's surface by its magnetic field. These are expected to pass Earth late on day 2 or day 3 (5th or 6th) with a chance of combining into a single arrival. Aside from the CMEs, no other solar wind enhancements are indicated, with mainly background winds expected. Geomagnetic activity is forecast to be predominately Quiet, but increasing to Unsettled to Active late day 2 and day 3 (5th and 6th) should any CME arrivals occur. These will also give a chance of isolated G1-G2 Minor to Moderate storms.

Energetic Particles / Solar Radiation: The count rate of solar energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	20	30	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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